

**NO CHILD LEFT BEHIND, TITLE II, (Part A) GRANT ABSTRACTS
2003-2004**

Following is a list of sub-grants funded by the Arkansas Department of Higher Education through the federally funded No Child Left Behind grant program. The purpose of the grant funds is to improve the quality of teaching in Arkansas. The grant notifications were distributed in February 2004.

Arkansas State University

\$93,505.00

Craighead County

Project Title: "Improving Mathematics and Science Proficiencies in Northeast Arkansas"

The following projects are included in this grant proposal:

- Proportional Reasoning in Middle School will be offered as a three-hour graduate/undergraduate course during the summer and fall of 2004. This course will increase the content knowledge and instructional strategies of middle school teachers in the areas of fractions, decimals, ratio, proportion and multiplicative proportionality. Follow-up sessions and classroom visits will occur in the fall of 2004 and the spring of 2005.
- Improving Algebra and Geometry Proficiencies through the Use of Technology will be offered as a three-hour graduate/undergraduate course during the summer and fall of 2004. This course will increase the content knowledge and instructional strategies of teachers in the areas algebraic and geometric thinking. Follow-up sessions and classroom visits will occur in the fall of 2004 and the spring of 2005.
- Smart Science: Preparing for the Science Benchmark Exams, Courses 3 & 4 will be offered at two three-hour graduate/undergraduate course during the summer of 2004. This course will increase the content knowledge and instructional strategies of teachers in the areas of earth, life and physical science.
- Developing Mathematical Ideas will be offered for professional development credit beginning in the spring of 2004 and be on-going until the end of the project. This course will increase the content knowledge and instructional strategies of elementary teachers in the area of number sense involving whole numbers and number representation.

Arkansas State University

\$61,718.00

Craighead County

Project Title: "Comprehensive Assistance in K-12 Science and Mathematics Instruction to Improve Benchmark Performance (CASM-BP)"

The Comprehensive Assistance in Science and Mathematics for K-12th Grade to Improve Benchmark Performance (CAMS-BP) is designed to increase teacher content knowledge and pedagogy in K-12 science through three courses and several Saturday and evening workshops during the 2004-2005 grant period. Comprehensive Assistance in Science and Mathematics for K-12th Grade to Improve Benchmark Performance (CAMS-BP) will focus on providing quality standards-based learning opportunities for current and future science and mathematics teachers in grades K-12 to increase science and mathematics content knowledge through the use of technology and cutting-edge pedagogical methods. Internet and ACCESS Center materials will be used to show teachers current standards-based mathematics programs. Experience bases science and mathematics is the focus of each of the instructional units of study offered by

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Comprehensive Assistance in Science and Mathematics for K-12th Grade to Improve Benchmark Performance (CAMS-BP).

Arkansas State University

\$16,498.00

Craighead County

Project Title: "Seeds of Change: The Biology and Culture of Plant People Interactions (SOC) Grades 6-12 In-service and Pre-service Teachers"

The Seeds of Change: The Biology and Culture of Plant-People Interactions (SOC) Grades 6-12 in-service and pre-service teachers is a reading-intensive discussion-oriented course that assumes basic knowledge of biology/botany and/or chemistry. Assistance is provided for teachers who need to refresh their background in the basic concepts and vocabulary. The course is designed to increase teacher content knowledge and pedagogy in 6-12 Biology, in 6-12 Biology, Botany, science mathematics, literacy and social studies through several weeks of study incorporating plants and human development. The course focuses on interdisciplinary integration, diversity and multiculturalism to provide an in-depth integrated overview of the biology, chemistry and culture of plants. Long term perspectives of plants and heirs and present and future uses will be examined during 2004-2005 grant period. The course will focus on providing quality standards-based learning opportunities for current and future science, literacy, social studies and mathematics teachers in grades 6-12 to increase science and mathematics content knowledge through the use of thematic integration as cutting-edge pedagogical methods. An additional option offered to students of this course is the Spring Break study in Peru.

Arkansas State University

\$44,480.00

Craighead County

Project Title: "Introducing Molecular Biology Into the Secondary Classroom"

The project is an in-service training program for secondary science teachers emphasizing biotechnological theory and applications in molecular biology. Thirty secondary science teachers will be selected from four educational Cooperatives served by the NEA Rural Institute for Math and Science and the NEA Delta Institute for Math and Science. There will be three one-week sessions which will meet during Summer 2004 at differing sites in northeast Arkansas: Jonesboro, Forrest City, and Mountain Home. There will be three primary topics to the class: proteins, ribonucleic acids (RNAs), and deoxyribonucleic acids (DNAs), with lecture focusing on their interactions/control within the cell. Learning modules and equipment for each laboratory experience will be prepared by the Pis for dissemination within the participating schools of each Center. Teachers within each center can utilize these modules and equipment during the school year. During the following summer there will be on-site visits to meet with participants. In addition to trouble-shooting, teachers will be updated during this time on recent pertinent discoveries and new websites in molecular biology and biotechnology.

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**Arkansas State University
Craighead County**

\$46,138.00

Project Title: "Comprehensive Assistance in Mathematics for 6-12 grade to Improve Benchmark Performance (CAM-BP)"

The Comprehensive Assistance in Mathematics for 7th-12th Grade to Improve Benchmark Performance (CAM-BP) will focus on providing quality standards-based learning opportunities for current and future mathematics teachers in grades 7-12 to increase mathematics content knowledge through the use of technology and cutting-edge pedagogical methods. Internet and ACCESS Center materials will be used show teachers current standards-based mathematics programs. Fostering Algebraic Thinking, Quantitative Literacy and Statistics.

**Harding University
White County**

\$38,338.00

Project Title: "Strengthening Content Knowledge, Improving Pedagogy, and Reflecting on Assessment of Student Achievement in Core Subject areas through the National Board of Professional Teaching Standards"

The National Board Candidate process is a high-stakes endeavor for teachers. The goal of the certification process is greater content knowledge and pedagogy resulting in improved student achievement. In partnership with the College of Education, the College of Arts and Humanities, and Augusta Public Schools, this period will provide rigorous, high quality professional development in specific content teaching areas for National Board certification and in descriptive, analytical and reflective writing across-the-curriculum with institutes in interdisciplinary approaches to teaching math, science, social studies, English/language arts, world languages and the arts.

**Southern Arkansas University
Columbia County**

\$26,650.00

Project Title: "Making the Connection: An Integrated and Constructivist Approach to Language Arts and Mathematics"

Southern Arkansas University's three colleges formed partnerships with Local Education Agencies of Lafayette County, Magnolia, McNeil, Taylor, Walker Schools, and Columbia County Christian School to present a research based proposal for multi-disciplinary development for 25 teachers and administrators, (5-12). It is designed to enhance language arts and mathematics throughout all disciplines.

From July 12-16, 2004, the SAU faculty and LEA partners will deliver professional development: a three-hour graduate course, 45 clock hours of instruction, fifteen hours of classroom implementation, and a final fall debriefing. A constructivist philosophy will shape a thematic integrative approach to incorporate Arkansas Frameworks and Benchmarks. Internal evaluation will be conducted by an SAU College of Business Professor, external evaluation by a designated ADHE team.

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The grant provides up to \$450 for tuition. SAU will waive student fees and provide administrative services, publicity and instructional materials. The LEA partners have participated fully in the development of this proposal and have made commitments, such as supplying facilities, technology, and support for substitutes and recruiting teachers of historically underrepresented and underserved populations. A director and two assistant directors will administer the program.

**Southern Arkansas University
Columbia County**

\$61,414.00

Project Title: "Developing Algebraic and Geometric Thinking"

Twenty-five teachers from each of two geographic areas (Magnolia and Ashdown), interested in improving student achievement in mathematics, grades 6-12, will be immersed in a two-semester sequence of graduate courses, focusing on algebraic thinking, geometry and measurement. These courses will be new and innovative, rich in content needed to deliver in-depth instruction in each of these strands at the middle- and high school levels. They will be team-taught using faculty from both the College of Education and the College of Science and Technology. An administrator of represented schools will attend at least one three-hour class meeting and the culminating event. Participants will take pre- and post-tests on content knowledge of both algebra and geometry/measurement deemed to be needed by teachers in grades 6-12. They will also complete a pre- and post-survey. Faculty from the College of Science and Technology and the College of Education will make classroom visits throughout the two semesters of coursework to provide support for high quality instruction. Particular attention will be given to the level of content mastery that is expected by participating teachers and their students.

**University of Arkansas
Washington County**

\$24,534.00

Project Title: "Using Distance Education to Deliver Professional Development to High Needs Districts in the Areas of Science and Math"

The Department of Curriculum and Instruction, University of Arkansas, in conjunction with the Fulbright College of Arts and Sciences, Arkansas Center for Mathematics and Science Education, Ozarks Unlimited Resources Cooperative, and 21 local school districts served by the cooperative, proposes to deliver a 45 hour workshop delivered via distance education targeting middle level and secondary mathematics and science teachers. School administrators from these schools will also be encouraged to participate. A minimum of 15 hours of concurrent and follow-up activities will occur onsite at each participating school district of reinforcement and demonstration purposes. Teachers from all districts served by the Ozarks Unlimited Resource Cooperative will be invited to participate in the year-long professional development activities; however, districts meeting the high-need LEA criteria will be the primary targets of the professional development. The aim of the professional development activities will be on making accommodations and modifications in math and science instruction for students having difficulties in these courses.

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University of Arkansas

\$55,512.00

Washington County

Project Title: "Science and Math Achievement using Real-World Technology"

Science and Math Achievement using Real-world Technology (SMART) consists of 2 major parts:

PART 1: Summer Session 1 will focus on general K-12 classroom technology following the SEDL Active Learning with Technology module series. Summer Session 2 will focus specifically on technology as it relates to 5-12 mathematics and science. Summer Session 3 will focus on K-4 mathematics and science integration assisted by technology. From Fall 2004 through Spring 2005 Semesters, Session 4 will reinforce the summer institutes' efforts as teachers return to their classrooms and implement the math, science and technology strategies covered during the summer institutes. UA faculty mentoring will occur through email, content extension workshops, classroom site visits, and teacher/school administration/UA faculty interaction to assist teachers in strategy implementation, evaluation and modification of lessons in order to insure classroom use of best practice mathematics, science and technology.

PART 2: Ten monthly evening workshops will focus on math, science and technology content for pre-service mathematics and science educators (PMASE) from the Spring 2004 through Spring 2005 semesters. This will be an extension of the PMASE group established in 2001 with technology being introduced for mathematics and science classroom implementation.

This project seeks to have a major impact on teacher comfort and skill levels in the use of technology in mathematics and science classrooms. K-12 students will benefit as an increase in teacher content knowledge and technology experience translates into broader classroom usage of real-world technology that, in turn, will add relevance to science and math classrooms and, ultimately, result in an increase in student achievement.

University of Arkansas at Little Rock

\$34,800.00

Pulaski County

Project Title: "Real-World, Data-driven, Inquiry Experiences for Teachers"

Arkansas STRIVE places science, math, and computer teachers from middle, junior high, and senior high schools (6-12th grades) into summer research positions or on projects in industry, government agencies, universities, research facilities, and nonprofit organizations. Teachers work with professionals in the field for eight-weeks and learn how professionals solve problems facing their organizations. We request matching monies from the No Child Left Behind (NCLB) Program for ten teachers to work on research projects in the ADHE-supported Centers for Math and Science Education at Arkansas universities and at other nonprofit organizations. We also present workshops to the teachers on inquiry and problem-based teaching, and on using computers for data analysis. In addition, we help the teachers develop inquiry-based or problem-based lessons using the new skills and experiences that the teachers acquired during the summer.

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University of Arkansas at Little Rock

\$23,024

Pulaski County

Project Title: "Applications in Physical Science-No Teacher Left Behind"

Applications in Physical Science-No Teacher Left Behind, Course 1 is a three-hour graduate course offered through the College of Education in conjunction with the College of Science and Mathematics during the fall of 2004. The course is designed to enhance teacher understanding of basic physical science concepts and improve science instruction in the upper elementary and middle level grades. The course will incorporate modules from Operation Primary Physical Science-Magnets, Science and Technology for Children-Magnets and Motors, and the Arkansas Physics Lending Library, Electricity and Magnetism Suite-Basic Magnetism and Electromagnetism.

University of Arkansas at Little Rock

\$49,270.00

Pulaski County

Project Title : "Teaching Mathematics with Technology, Problem-Based Learning and Questioning"

The project will consist of three graduate-level courses in mathematics education for 75 teachers, each course for three hours of graduate credit. The courses are designed for in-service teachers of secondary mathematics. The courses are:

- 1) Integrating the Graphics Calculator/Handheld into the Math Classroom,
- 2) Integrating Technology into the Math Classroom
- 3) Bridging the Gap between Algebra and Geometry in Secondary School Mathematics.

Each course will emphasize using technology, problem-based learning, and asking good questions to improve teacher quality and student achievement. Teacher-participants will be involved in research, reading, writing, oral communication, participation, and reflection.

University of Arkansas at Monticello

\$29,092.00

Drew County

Project Title: "Learning and Teaching Linear Functions Instruction for Mathematics Teachers"

The University of Arkansas-Monticello will provide math teachers at participating districts with access to content and instructional strategies to teach linear functions. The professional development will be offered for two weeks (a total of forty-five hours) of 3 graduate credit hours of instruction for 20 to 30 middle level and secondary teachers and principals during the summer of 2004 (July 20-30, 2004). The Learning and Teaching about linear functions course will potentially help improve teachers' and principals' ability to make systemic changes in mathematics pedagogy. This course has the potential to bring area school districts out of academic distress and to move the students of Southeast Arkansas from scoring below basic and basic to proficient and advanced on the state benchmark and end-of-course exams.

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University of Arkansas at Pine Bluff

\$41,618.00

Jefferson County

Project Title: "The TIMS Project (Teaching to Improve Math Scores)"

The P-16 Education Enhancement Coalition is deeply committed to closing the achievement gap in middle school math. We have consolidated our resources and aligned our efforts to serve students in Stuttgart, Dollarway, Altheimer and Pine Bluff School Districts. Our focus for this project is to reduce the achievement gap in the area of mathematics and to garner an increase in the use of technology.

Our project will consist of a summer institute for middle school math teachers (grades 4-8) from our partner school districts, with follow-up activities at the University of Arkansas at Pine Bluff and at each participating school site. We will focus on using the Benchmark released test items, teaching to the Arkansas Math Frameworks, incorporating supplemental resources, and technology inclusion in the math classroom. Institute participants will engage in hands-on training with various technological tools. All participants will have access to technical support via e-mail or telephone from a qualified facilitator. Facilitators will model and teachers will participate in "best practices". We will evaluate the project by data from the Arkansas assessment programs, surveys, pre- and post-assessment. Teachers deserve support in leading their students to meet expectations as reflected in the No Child Left Behind Act of 2001. The P-16 Education Enhancement Coalition believes that the key to student academic achievement is to help teachers focus on how the content is delivered.

University of Arkansas at Pine Bluff

\$19,188

Jefferson County

Project Title: "Southeast Arkansas P-16 Education Partnership"

Education in the Arkansas Delta is dependent upon a teaching population that is trained and retrained to address student needs through the use of educational standards by incorporating technology as a management tool or as a method to enhance instruction. With the current movement toward higher standards for student performance, improved curricula, and assessment strategies, Arkansas Delta schools need high quality professional development programs that will address the needs of their teachers—many of whom are operating on Deficiency Removal Plans from the state of Arkansas Teacher Licensure Program. This program will support the Arkansas Curriculum Frameworks and national standards. The targeted audience for this program is the school districts of the Arkansas Delta where there are high concentrations of low-income students in sparsely populated areas. The activities proposed will be teacher preparation for pre-service teachers (undergraduate) and professional development for career teachers (graduate). Teachers will receive training in regard to recognized teaching techniques and best practices in working effectively with low-income, minority, and academically challenged middle to high school students. Professional development and training is significant to the learning of new teaching/learning methods to accommodate underserved and underrepresented students toward academic progression. Professional development activities will include, but not be limited to, a three-hour curriculum-based technology course where participants will receive graduate or undergraduate credit; weekend or evening training sessions, summer workshops to reinforce or introduce new and innovative technology-based teaching materials; and follow-ups on

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classes/sessions/workshops to evaluate material usage. Altheimer/Sherrill, Dollarway, and Pine Bluff are the targeted districts for recruiting teachers into the program.

University of Central Arkansas

\$67,564.00

Faulkner County

Project Title: "UCA/NLRSD P-16 Education Partnership-Improving Teacher and Principal Quality: No Child Left Behind"

The Partnership between the University of Central Arkansas and the North Little Rock School District will provide a graduate credit course for 70 middle grade teachers of science content knowledge, reading and writing literacy and instructional technology. The program objectives are 1) to increase the science, reading and writing literacy, and the use of computer information technology of in-service middle grade teachers as measured on pre-and post-test gains at a rate of 80%; 2) to increase the number of middle grade teachers who seek National Board for Professional Teaching Standards (NBPTS) Certification at a rate of 20%; 3) to increase the students' science, reading and writing scores on CRT, NRT measures at a rate equal to or higher than the District's Annual Instructional Improvement Plan. A team teaching approach will be employed to encompass 45 contact hours during the academic year, culminating in a two-week summer program. Scientifically based research indicates that teacher quality has a powerful effect on student achievement and teachers who have achieved National Board Certification significantly outperform teachers without certification on 11 of 13 key dimensions of teaching expertise. It is projected that the quality of mathematics and science teaching and student achievement will improve significantly.